

# Level of Information & Communication Technology (ICT) Usage Among ESL Teachers in Malaysia

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## Abstract

The current study attempted to identify the level of (ICT) usage among ESL teachers, the difference between the level of ICT usage based on gender and age, the teachers' perception towards ICT usage and the barriers faced by teachers. This study was a quantitative study using the descriptive survey approach. The total number of participants was 90 ESL student teachers. Data collection involved the use of a questionnaire and the results were analysed using descriptive and inferential statistics. Findings showed that the level of ICT among teachers was moderate to high. The findings also revealed that females used ICT more than males and younger teachers used ICT more than older teachers. In addition, the level of perceived ease of use and perceived usefulness was moderate to high and high respectively. The findings also indicated that the level of barrier among teachers was low.

**Keywords:** ICT, ICT usage, perceived ease of use, perceived usefulness, barriers

## 1. Introduction

With the idea of becoming a developed nation by the year 2020, Ministry of Education Malaysia (2001) applied several ICT programs in schools nation-wide in order to bring technology into the classrooms starting with programs such as Computer in Education, Computer Literacy Pilot Project, Computer Aided Instruction and Learning. National asserted that a lot of efforts made by the Malaysian government to use ICT, but, modern technology have had very little impact on educators' conceptions of teaching and learning. In addition, institution authorities have invested millions of ringgit in order to equip their centres with educational technologies like LCD projector, computer lab, networking or other computer peripherals like modems and printers to help teaching and preparations of teaching materials.

Although Malaysia has a long history of bringing technology into the classrooms, research findings indicate that teachers are not optimizing on what technology has to offer. ICT usage level among teachers is found to be still quite low (Robiah Sidin, Juhana Salim and Nor Sakinah Mohamed, 2003; Educational Technology Division, 1999; Norizan and Salleh-Huddin, 1997). Factors considered as barriers to teachers integrating ICT in their teaching include lack of knowledge, negative attitude, perception and beliefs (Dusick, 1998), age, gender and experience in using ICT (Wong, 2002), little experience in ICT training, limited access to computer, and lack of support (Norizan Abdul Razak, 2003).

Undoubtedly, a huge amount of money is spent on buying equipment for computer laboratories and organizing ICT training courses for teachers. Therefore, the teachers' perception is certainly important for a successful usage of the technology (Carlson and Gadio, 2003).

## 2. Literature review

### 2.1 ICT Usage among teachers

In Malaysia, when the government decided to change the medium of instruction for the teaching of Mathematics and Science from Malay to English starting 2003 onwards, several steps have been taken to optimize the role of the English language which is taught as a second language in schools. Specifically, English language teachers as well as Mathematics and Science teachers have been given laptop computers, and teaching coursewares to help them in their professional tasks and teaching. Classrooms are supplied with LCD projectors, screens, speakers with the UPS system. In addition, a budget of RM5000 to RM15000 was allocated for each school to acquire additional reference resources (Lau and Sim, 2008).

The survey is considered as a common method used by previous researchers intending to discover ICT usage among teachers. For instance, a research conducted by Cox, Preston and Cox (1999) reported the use of ICT amongst ICT teachers in their teaching. For collecting the relevant data, the researchers applied the survey method and 82 educators

participated in their study. Moreover, Cox and his colleagues also explained that most of the teachers used word-processing and 70% of them applied basic IT tasks at home. Based on their findings, 75% of the participants have the access to their e-mail at home. The researchers further mentioned that the majority of the teachers had no difficulties in using both the hardware and software. Meanwhile, the analysis of the full list of factors related to class use of ICT revealed a very positive attitude amongst the majority of the teachers in using ICT in their teaching. Similarly, majority of the respondents (85%) agreed that using ICT made their lessons more interesting, and 90% thought ICT made their lessons more enjoyable. More importantly, majority of them also agreed that using ICT would not increase difficulty of controlling the class (Cox, Preston and Cox, 1999).

Lau and Sim (2008) carried out a survey study to explain the level of ICT usage among Malaysian teachers. A self-administered questionnaire was used. The research sample included 250 secondary teachers teaching science and mathematics subjects. The findings revealed that 75% of the respondents utilized ICT daily or weekly for teaching purposes. The most common applications reported to be used by the respondents were teaching courseware (73%), presentation tools (43%), Internet browsing (53%), and spreadsheets (32%). The researchers suggested that the teachers still need more training on ICT applications in order to improve their usage (Lau and Sim, 2008).

A questionnaire survey was also carried out by (Hassanzadeh, Gholami, Allahyar and Nooreen, 2012) among 89 TESL postgraduate students in Malaysia in order to identify the overall levels of pre-service teachers' motivation towards ICT and their relation to personality. The results show that teachers have high ( $M=3.63$ ,  $SD=.46$ ) levels of ICT usage. It seems that the Malaysian teachers use computer technology highly in their teaching. The findings also show that teachers use ICT for general software applications such as Internet, E-mail, presentation, word processing and office work. Overall, the finding suggests that school's teachers need training in a wide range of computer technology skills to make full use of ICT in teaching processes.

## 2.2 Teachers' Usage of ICT and Socio-Demographic

### 2.2.1

Ray, Sermunen, and Harris (1999) reported in their study that there was no significant difference between the male and female users in terms of computer usage. This finding is supported by Woodrow (1992), Mehloff (2001), and Abu Samak (2006) who mentioned that there was an insignificant difference in the mean scores of computer usage between females and males. The results of another research revealed that there is no significant difference between boys and girls in Personal Computer (PC) access and competence achievement. However, male teachers had a higher self-efficacy with computers and competence than female teachers (Kennewell and Morgan, 2006).

### 2.2.2 Age

Jennings and Onwuegbuzie (2001) reported that age was significantly connected with the usage of ICT among teachers. The results from their study indicated that younger teachers used more of ICT than older ones. Another study by Abu Samak (2006) concluded that there is a negative relationship between the level of ICT usage and age.

### 2.2.3 Perceived Ease of Use and Perceived Usefulness

According to Hu, Clark and Ma (2003), perceived usefulness is a parameter that shows the level of users' consideration on computer as useful tool while perceived ease of use is defined as the degree to which an individual views his or her use of computer to be achieved easily. Davis, Bagozzi, and Warshaw (1989) mentioned that both perceived usefulness and perceived ease of use are crucial elements to determine ICT usage. The researchers further suggested that perceived usefulness is more important than perceived ease of use due to the fact that a new technology is usually adopted in many cases mainly because it is an instrument to be utilized in achieving tasks. D' Silva (2007) stated that there is a significant positive relationship between both perceived ease of use and perceived usefulness and computer usage.

### 2.2.4 Barriers of ICT Implementation

In a research conducted in Malaysia, some of the barriers identified with regard to teachers implementation of ICT in their teaching include lack of time, limited knowledge on how to make full use of ICTs, the lack of technical support, lack of software or websites that support state standards' as well as limited understanding on how to integrate ICT in their teaching (Lau and Sim, 2008, p.33).

According to British Educational Communications and Technology Agency (BECTA, 2004) the barriers that are related to teacher-level implementation include lack of time, lack of confidence, and resistance to change while the barriers that are related to institution such as lack of effective training, technical problems and lack of access to resources are categorised under the school-level group.

Therefore, the aim of the study was to find the answer to the following research questions:

1. Is there any significant difference in ICT usage among ESL teachers in terms of gender?
2. Is there any significant difference in ICT usage among ESL teachers in terms of age?
3. What is the level of ICT usage among ESL teachers?
4. What is teachers' level of perceived ease of use towards ICT usage among ESL teachers?
5. What is teachers' level of perceived usefulness towards ICT usage among ESL teachers?
6. What are the barriers that the teachers faced when using ICT in the ESL classroom?

In this study the Technology Acceptance Model (TAM) was used as its theoretical basis which underpins the level of usage of computers among ESL teachers (Davis, Bagozzi, and Warshaw, 1989). TAM is a famous model used for explaining and predicting the usage of information technology (Shih, 2004).

### 3. Methods and Materials

#### 3.1 Research Design

This study was a quantitative study using the descriptive survey approach. The survey was conducted among 2 faculties in a public university in Selangor, Malaysia.

#### 3.2 Instrumentation

In this study, in order to gain data a questionnaire was used. The questionnaire consisted of 4 sections namely a) socio-demographic information, b) ICT usage, c) teachers' perceptions (perceived ease of use and perceived usefulness) and d) barriers. The questionnaire adapted from Nahid shaverdian (2010), the Iranian ICT training programs for teacher (Sadeghnezhad, 2006), Flowers and Algozzine (2000) and Kellenberger and Hendricks (2000), 'Electronic Mail System' by Davis (1989) and modified to ICT and BEKTA (2004).

#### 3.3 Sampling and participants

The population included 114 local ESL postgraduate student teachers majoring in literature and TESL from the Faculty of Modern Languages and Communication and Faculty of Educational Studies respectively. In this study, stratified random sampling method was used. The sample size was equal to 89 teachers based on Krejcie and Morgan's (1970) sample size table. To reduce the level of non-responding and questionnaire collecting error and preventing sample loss, 105 questioners were distributed. After data collection, 15 questionnaires were excluded because of the size of non-responding which were more than 5%. Finally, 90 questionnaires were used for data analysis.

#### 3.4 Analysis Method

The data obtained was analyzed by using a SPSS version 17. In this study, descriptive statistics and inferential statistics such as Independent-Sample T-test and Analysis of Variance (ANOVA) were used.

### 4. Results and Discussions

#### 4.1 Results and Discussions Related to Question One

As shown in Table 1, majority of participants were females (n=74) while the number of male teachers were (n=16).

Table 1. Distribution of Respondents based on Gender

Gender	Frequency	Mean	Std. Deviation
female	74	66.3%	17.9
male	16	55.8%	20.7

Based on the findings, female participants were found to use more ICT (M=66.3%, SD=17.9) than male participants (M=55.8%, SD=20.7).

The findings of this study did not agree with the idea suggesting that there was higher tendency among men than women to try new technologies (Riva and Galimberti, 1998 and Gattiker and Nelligan, 1998) as the number of females in this study was more than males.

#### 4.2 Results and Discussions Related to Question Two

The results showed that there is a statistical difference between level of ICT usage among teachers who are less than 25 years old and more than 35 years old (Mean Difference= 12.7, Sig=0.020) and teachers within the age range of 25-35 years old use more ICT than those in the 35 years old age group (Mean Difference= 16.7.7, Sig=0.002). In other words, younger teachers use ICT more than others (Refer to Table 2).

Table 2. Distribution of Respondents based on Age

Age	frequency	Percentage
Less than 25 years old	33	36.7
25-35 years old	40	44.4
More than 35 years old	17	18.9

The results of the present study were consistent with Jennings and Onwuegbuzie's (2001) study which reported that age was significantly connected with the usage of ICT among teachers. The results indicated that younger teachers used more of ICT than older ones.

### 4.3 Results and Discussions Related to Question Three

Results revealed that the mean of ICT usage was 64.4%. Therefore, the level of ICT implementation among ESL teachers was moderate to high. According to the results, Internet, PowerPoint and Word had the most high usage among ESL teachers with means of (M=74.6%, SD=25.0), (M=74%, SD=22.9) and (M=70.5%, SD=26.3), respectively (Refer to Table 3).

Table 3. Descriptive Statistics of ICT usage and its subscales

	Mean	Std. Deviation
Windows	67.6%	21.2
Word	70.5%	26.3
PowerPoint	74.0%	22.9
Excel	64.9%	29.6
Access	30.5%	30.4
Internet	74.6%	25.0
ICT(Total)	64.4%	18.8

There was a similarity between the results of this study and the findings of the study by Hassanzadeh, Gholami, Allahyar and Nooreen, (2012) who reported that teachers have high (M=3.63, SD= .46) levels of ICT usage. The findings also showed that teachers use ICT for general software applications such as Internet, E-mail, presentation, word processing and office work.

### 4.4 Results and Discussions Related to Question Four

The Percentage of items regarding to perceived ease of use was used to determine the teachers' level of perceived ease of use towards ICT. The level of perceived ease of use was moderate to high. As shown in the findings from Table 4, more than 50% of respondents disagreed and strongly disagreed with all items except item number 9.

Table 4 shows that 67.7% of respondents do not become confused when they use the ICT. In addition, 66.7% of them claim that they do not make errors frequently when using ICT. Moreover, 67.8% of respondents do not believe that interacting with the ICT is frustrating. In addition, 72.2% of respondents felt that they do not need to consult the user manual when using ICT.

Table 4 also shows 58.8% of respondents felt that the integration of ICT does not require a lot of their mental effort. Furthermore, 60.1% of respondents find it easy to recover from errors encountered while using ICT. In addition, 65.6% of respondents find it easy to get the ICT to do what they want it to do. However, 63.3% of respondents responded that ICT is not flexible to interact with.

Based on the data found, 52.3% of respondents believe ICT often behaves in expected ways. Furthermore, 62.3% of them find it easy to use the ICT. Moreover, 64.5 % of respondents responded their interaction with the ICT is easy to understand. Meanwhile, 71.1% of respondents find it easy to remember how to perform tasks using the ICT. In addition, 74.4% of respondents agree that the ICT provides helpful guidance in performing tasks. Finally, in total it was found that 72.2% of respondents found ICT easy to use.

Table 4. Percentages of items regarding to Perceived Ease of Use

No	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	I often become confused when I use the ICT.	2.2	6.7	23.3	44.4	23.3
2	I make errors frequently when using ICT.	1.1	7.8	24.4	47.8	18.9
3	Interacting with the ICT is often frustrating.	1.1	10.0	21.1	45.6	22.2
4	I need to consult the user manual often when using ICT.	1.1	6.7	20.0	52.2	20.0
5	Integrating with the ICT requires a lot of my mental effort.	3.3	16.7	21.1	44.4	14.4
6	I do not find it easy to recover from errors encountered while using ICT.	2.2	11.1	25.6	47.8	13.3
7	The ICT is rigid to interact with.	2.2	13.3	21.1	44.4	18.9
8	I do not find it easy to get the ICT to do what I want it to do.	5.6	7.8	21.1	47.8	17.8

9	The ICT often behaves in unexpected ways.	4.4	22.2	21.1	35.6	16.7
10	I find it cumbersome to use the ICT.	3.3	7.8	26.7	46.7	15.6
11	My interaction with the ICT is not easy for me to understand.	2.2	8.9	24.4	47.8	16.7
12	It is not easy for me to remember how to perform tasks using the ICT.	3.3	6.7	18.9	52.2	18.9
13	The ICT does not provide helpful guidance in performing tasks.	4.4	4.4	16.7	52.2	22.2
14	Overall, I do not find the ICT easy to use.	4.4	6.7	16.7	40.0	32.2

The findings reported are congruent with a study done by Davis, Bagozzi, and Warshaw, (1992), who found that teachers preferred using the technologies which they found easy to use. Therefore, teachers' perceived ease of use in using a specific technology like ICT could enhance the level of their ICT usage and its implementation would also be more successful. In this study, 72.2% of respondents found ICT easy to use.

#### 4.5 Results and Discussions Related to Question Five

Question five looks into the participants' level of perceived usefulness which was used to determine the teachers' level of perceived usefulness towards ICT. Based on the findings, more than 70% of the respondents fell into the high level of perceived usefulness towards ICT.

Table 5 shows that 74.5% of the respondents believed that their job would be difficult to perform without ICT. In addition, 81.1% of them responded using ICT gave them greater control over their work. Moreover, 84.5% of respondents thought that using ICT improves their job performance. Over 80% of respondents believed that ICT was able to address their job-related needs.

Findings found from the study also showed that 78.9% of respondents believed using ICT saves their time. More than 80 % of the teachers thought ICT enables them to accomplish tasks more quickly. Moreover, 80% of respondents responded ICT supports critical aspects of their job. In addition, 83.4% of respondents said using ICT allows them to accomplish more work (refer to Table 5).

Table 5 also shows that 66.7% of respondents believed using ICT reduces the time they spend on unproductive activities. A little over more than 80% of the participants responded using ICT enhances their effectiveness on the job. Moreover, 78.9 % of respondents responded Using ICT improves the quality of the work they do. In addition, 83.3% of them said using ICT increases their productivity. More than 85% of the respondents believed using ICT makes it easier to do their job. Finally, on the whole, 88.9% of teachers find the ICT system useful in their job.

Table 5. Percentages of items regarding Perceived Usefulness

No	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	My job would be difficult to perform without ICT.	1.1	7.8	16.7	45.6	8.9
2	Using ICT gives me greater control over my work.	0	3.3	15.6	53.3	27.8
3	Using ICT improves my job performance.	0	0	15.6	55.6	28.9
4	The ICT addresses my job-related needs.	0	1.1	14.4	56.7	27.8
5	Using ICT saves me time.	0	2.2	18.9	45.6	33.3
6	ICT enables me to accomplish tasks more quickly.	0	2.2	13.3	47.8	36.7
7	ICT supports critical aspects of my job.	0	1.1	18.9	51.1	28.9
8	Using ICT allows me to accomplish more work than would otherwise be possible.	0	0	16.7	47.8	35.6
9	Using ICT reduces the time I spend on unproductive activities.	3.3	5.6	24.4	38.9	27.8

10	Using ICT enhances my effectiveness on the job.	0	1.1	17.8	47.8	33.3
11	Using ICT improves the quality of the work I do.	0	0	11.1	53.3	35.6
12	Using ICT increases my productivity.	0	1.1	15.6	51.1	32.2
13	Using ICT makes it easier to do my job.	0	0	13.3	48.9	37.8
14	Overall, I find the ICT system useful in my job.	0	0	11.1	45.6	43.3

#### 4.6 Results and Discussions Related to Question Six

In order to assess the level of barriers among ESL teachers the mean of barriers and its subscales was calculated. Table 6 shows the values of mean and standard deviation for the barriers identified with regard to the problem investigated. It is evident that the level of all barriers except for technical problem is less than 50%. In other words, on the whole, the level of barriers that the teachers faced when using ICT in the ESL classroom was low.

Table 6. Means comparison of Barriers and its subscales

	Mean	Std. Deviation
Lack of confidence	28.4 %	31.5
Lack of time	41.5 %	33.5
Resistance to change and negative attitudes	23.0 %	27.6
Effective training	43.1 %	37.2
Access to resources	37.1 %	31.0
Technical problems	50.0 %	34.8
Barriers (Total)	37.0 %	25.8

In addition, Figure 1 shows the comparison of means of barriers. Form the figure shown, it is evident that technical problems, effective training barriers and lack of time were the most common barriers that the teachers faced when using ICT in the ESL classroom with means of ( $M=50.0\%$ ,  $SD=34.8$ ), ( $M=43.1\%$ ,  $SD=37.2$ ) and ( $M=41.5\%$ ,  $SD=33.5$ ), respectively.

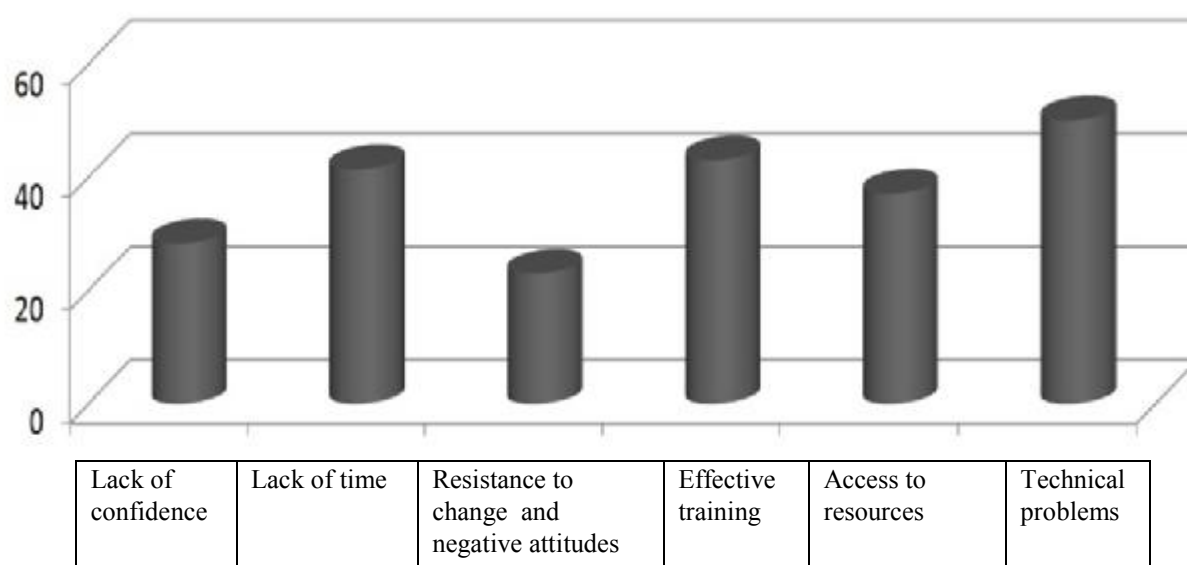


Figure 1. Means comparison of Barrier subscales

The following paragraphs compared the results of this study with other studies with regard to technical problems, lack of effective training programs and lack of time.

#### A) Technical problems

The findings found in this study were similar to several previous studies such as Pelgrum, (2001) and BECTA, (2004). Pelgrum (2001) found lack of technical assistance as an important barrier. In this sense, teachers may be discouraged from using ICT because of the fear of equipment breakdown during their teaching (BECTA, 2004). ICT resources might be available in schools, but teachers cannot use ICT in their teaching because it is difficult for them to operate the equipment. Thus, technical assistance is needed to help teachers to use the up-to-date equipment. Moreover, technical support given to them could also assist them in training and saving their time. If these are combined together, they will allow access to ICT resources and thus help the successful usage of ICT in the teaching process.

#### B) Lack of effective training programs

The results obtained in this study were found to be consistent with those of BECTA (2004) and Cox, Preston, and Cox(1999) who suggested that is important to provide pedagogical training for teachers to use of ICT. This could also be due to the fact that teachers do not know how to use or implement ICT in their teaching tasks. This is very much supported by Cox, Preston, and Cox (1999) who indicated that training would not be helpful and useful for teachers to be able to use ICT, if it was just focusing on ICT skills rather than pedagogical practices. Despite the training programs that have been offered to teachers, it seems that teachers still require more related training. According to BECTA (2004), teachers need to be provided with ICT skills by giving them training continuously. Meanwhile, Newhouse (2002) stated that “teachers need to not only be computer literate, but they also need to develop skills in using computer into their teaching” (p.45). Therefore, if there was no effective training, teachers would be unable to access to ICT resources.

#### C) Lack of time

The current study's finding is supported by Al-Alwani (2005), BECTA (2004), and Schoepp (2005) who stated that teachers encountered the lack of time within a class period to use ICT. Although the schools are equipped with computer laboratories, lack of time does not allow teachers to access these resources. This could be because when there are many lessons to be taught for each teacher, there is insufficient time for them to work with ICT resources. Al-Alwaini (2005) also concluded that the busy schedule, caused by lack of time for teachers, as well as inadequate ICT resources and time limitation prevented teachers to use ICT (Cox, Preston, and Cox1999; Newhouse, 2002).

### 5. Conclusion

It is important to bear in mind that all users are interested in using technologies which are easy to use and also can help them improve their work performance and help them in doing their tasks. However, based on the results obtained in the present study, the teachers' perceived ease of use was found to be in the range from moderate to high while the perceived usefulness was high. Although, the level of ICT usage among the respondents was moderate to high but technical support, effective training and lack of time were the most common barriers among them.

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